

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

WIRTGEN AMERICA, INC.,

Plaintiff,

v.

CATERPILLAR, INC.,

Defendant.

Case No. 1:17-cv-00770-JDW

MEMORANDUM

Our legal system asks juries to answer complicated, important questions across a range of subjects. That process only works if we give juries space to do their jobs, both during trial and after. That means deferring to a jury's findings as long as some evidence supports the decision. In this case, Wirtgen America, Inc. and Caterpillar, Inc. put to a jury a number of complicated questions concerning Wirtgen's patent infringement claims. The jury listened attentively for more than a week, deliberated, and returned a mixed verdict. Rather than accept what the jury did, both Wirtgen and Caterpillar argue that the jury got it wrong when it ruled against them. Miraculously, both also claim the jury got it right when it ruled in their favor. But their arguments reflect each company drinking its own Kool-Aid, rather than examining the jury's verdict with appropriate deference. In my view, the jury reached defensible conclusions on every issue presented to it. I will therefore decline the Parties' invitation to disturb the jury's verdict.

Beyond the jury verdict, Wirtgen seeks additional relief. Because Caterpillar deliberately copied Wirtgen's machines and continued its infringement long after it should have stopped, I will award Wirtgen enhanced damages. Further, I find that Wirtgen suffered an irreparable harm from Caterpillar's infringement that monetary damages would not compensate so I will grant Wirtgen's request for a permanent injunction. Caterpillar will also pay interest and supplemental damages.

I. RELEVANT BACKGROUND

A. The Parties

Wirtgen Group is a group of companies that manufacture and sell road construction equipment. In May 2017, Wirtgen GmbH (the Wirtgen Group's manufacturing arm) assigned the at-issue patents to Wirtgen America¹ for a nominal amount. In December 2017, John Deere acquired Wirtgen Group for \$5.2 billion. (Tr. 196:15-19.²) Caterpillar and Wirtgen compete in the road milling machine market. A milling machine (or "cold planer") removes the surface of a road for repaving.

B. Patents At Issue

On June 16, 2017, Wirtgen sued Caterpillar for patent infringement. Wirtgen accused Caterpillar's large milling machines (the PM600 and PM800 series), small milling

¹ I will refer to Wirtgen America as "Wirtgen." To the extent I need to reference other Wirtgen entities, I will do so with specificity.

² References to "Tr." refer to the trial transcript, and references to "Ex." refer to exhibits that I admitted at trial.

machines (the PM300 series), and reclaimers (the RM600 and RM800 machines) of infringement.³ By the time the case reached trial, Wirtgen alleged that Caterpillar's Accused Machines infringed six of its patents, all disclosing various features or methods relating to road construction machines.⁴ Wirtgen has never licensed the patents at-issue in this case, and Caterpillar never contacted Wirtgen to ask for a license.

Relevant here, the '641 Patent discloses a method for safely driving backwards, such that the machine's rotor automatically shuts off if it's too close to the ground. The '788 Patent discloses swapping between sensors that read the position of the machine relative to the ground surface. The '972 Patent discloses a parallel-to-surface technology that automatically levels the machine parallel to the ground. The '309 Patent discloses a machine with a four-sided stability patten and a floating axel. The '530 Patent discloses intelligent leg sensors for a road construction machine. The '268 Patent discloses isolation mounting to reduce vibrations from the engine.

C. The Relevant Market

The road milling machine market consists of four companies: Wirtgen; Caterpillar; BOMA; and Roadtec. Wirtgen dominates with roughly 70% market share. Caterpillar trails in second and neither BOMAG nor Roadtec presents significant competition to

³ I refer to the PM 600 series, PM800 series, PM300 series, RM600, and RM800 as the "Accused Machines."

⁴ (1) U.S. Patent No. 7,828,309 ('309 Patent); (2) U.S. Patent No. 7,530,641 ('641 Patent); (3) U.S. Patent No. 9,656,530 ('530 Patent); (4) U.S. Patent No. 7,946,788 ('788 Patent); (5) U.S. Patent No. 8,424,972 ('972 Patent); (6) U.S. Patent No. RE48,268 ('268 Patent).

Wirtgen. Some consumers like to purchase their machines in fleets. At least at one point in time, Caterpillar sought to position itself to provide a full range of products for its customers. (*See, e.g.*, Exs. 360.0016; 562.0010.)

One substantial source of revenue for road milling machine companies is spare and replacement parts. Wirtgen's customers buy these parts in an almost equal to what they first paid to acquire the machine. (Tr. 200:19-24; Ex. 2687A.) Caterpillar expects to get 30% of the initial machine price in revenue from sales of spare and replacement parts every year for the life of the machine. (Tr. 892:21-893:9; 894:4-24.)

D. Caterpillar's Infringement

1. Development

A new generation of milling machines launches about every decade. In 2010, Caterpillar began its development of what would eventually become its PM300, PM600, and PM800 series. That year, to aid that development process, Caterpillar tore down a Wirtgen W120 machine. The teardown involved disassembling the machine and testing its functionality and performance. Caterpillar photographed and created computer-aided design files ("CAD files") of the Wirtgen machine. From its teardown of its own machine and the W120, Caterpillar generated 1,128 ideas for its next product, identifying certain "advanced technologies." During its development of the Accused Machines, Caterpillar never tore down a Roadtec or BOMAG machine.

Caterpillar also surveyed its customers. (*Id.* 411:14-24 (discussing the “Voice of Customer” research).) Through that research, Caterpillar identified what features customers wanted in their cold planers. The surveys indicated that customers liked the features on Wirtgen’s machines and, according to one expert at trial, “in some instances [the customers] didn’t want a machine without that feature.” (*Id.* 897:13-18.)

From the teardown and its customer surveys, Caterpillar identified certain technologies that would allow it to catch up to Wirtgen. This included parallel-to-surface automatic leveling technology, a four-fold floating axel, and an isolation mounted engine. Caterpillar also identified features that would “match in value” compared to the W210. (Tr. 428:25-431:1; Ex. 0611.0039.) This included “position sensing cylinders” and “automatic four leg leveling.” Then Caterpillar “look[ed] into ways of accomplishing [those] feature[s]” during its development process. (Tr. 422:2-24.)

By 2012, Caterpillar’s development on the new machines stalled. In the interim, the ‘641, ‘788, ‘972 and ‘309 Patents issued. In 2013, the development resumed. In October 2014, Caterpillar engineers reconvened for an internal review to define the concepts for its next machine.

2. Launch

In 2016, Wirtgen held about a 50-60% market share and Caterpillar had roughly 4%. At that time, Caterpillar was “limp[ing] along” in the market with its PM200 series, struggling to make sales. (*Id.* 360:13-362:20; 1025:4-14.) That year, Caterpillar released

its PM600 series, and Caterpillar's market share quickly doubled. Wirtgen's market share declined by a corresponding amount. Wirtgen attributes this loss to Caterpillar's encroachment based on monthly reports from an association of equipment manufacturers, but Caterpillar argues via expert testimony that it took market share from Roadtec and BOMAG, not Wirtgen.

From Wirtgen's perspective, Caterpillar's sharp increase in market share was unprecedented. It presented a "very serious" threat to Wirtgen's business. (*Id.* 242:3-10.) Nevertheless, Wirtgen ultimately regained this market share. From 2016 to 2024, Wirtgen's market share increased to just over 70% of the market.

E. Litigation

1. ITC proceeding

On July 19, 2017, Wirtgen filed a complaint with the International Trade Commission, claiming infringement of five of the twelve patents in Wirtgen's initial complaint in this case. Wirtgen did not present the '788 and '972 Patents to the ITC. Wirtgen America's President and CEO (Jim McEvoy) testified that Wirtgen sought relief from the ITC because of its ability to enjoin Caterpillar from importing infringing machines into the country.

In October 2018, an ALJ at the ITC issued the ITC's determination. He found that Caterpillar's machines violated 19 U.S.C § 1337 by importing products that infringed the '530 and '309 Patents. *See Caterpillar Prodotti Stradali S.R.L. v. Int'l Trade Comm'n*, 847

Fed. App'x 893, 894 (Fed. Cir. 2021). The ALJ found no violation of § 1337 with respect to the '641 Patent, but he also said that, if customers in the United States used Caterpillar's machines, then they would infringe the '641 Patent (Tr. 441:13-17).

After the ITC's decision, Caterpillar domesticated its production. This decision allowed Caterpillar to comply with the ITC's importation prohibition while continuing to sell and manufacture the machines that the ITC determined infringed Wirtgen's patents.

Caterpillar and Wirtgen appealed the ITC's decision. On March 15, 2021, the Federal Circuit affirmed the ALJ's findings for the '530 and '309 Patents. *See Caterpillar Prodotti Stradali S.R.L.*, 847 Fed. App'x at 895. It reversed, vacated, and remanded as to the '641 Patent. *See id.* On November 4, 2021, on remand, the ITC issued a modified exclusion order to include the '641 Patent.

Caterpillar continued to sell machines with features that the ITC found to infringe until it updated those machines. For example, in 2023, Caterpillar released rotary mixers incorporating the same technology that infringes the '530 Patent. Caterpillar also implemented certain redesigns to avoid infringing Wirtgen's patents. In July 2020, Caterpillar removed ride control from its machines. In 2021, Caterpillar removed its reverse rotor shut off.

2. This case

Wirtgen filed this lawsuit on June 16, 2017.⁵ On August 29, 2017, Judge Andrews stayed the case pending the resolution of the parallel ITC proceedings. On May 27, 2021, Judge Andrews lifted the stay with respect to all the patents in suit except the '641 Patent. Judge Andrews lifted the stay on the '641 Patent on January 20, 2022. Before trial, I ruled on the Parties' *Daubert* motions, motions for summary judgment and motions *in limine*. All told, Wirtgen prevailed on some issues, Caterpillar on others.

The Parties filed pre-trial motions to preclude ITC-related evidence. I denied Caterpillar's motion to the extent that it sought to prevent the jurors from learning that a specific piece of evidence came from the ITC proceedings. I explained that the ITC proceedings might be relevant to the patents at-issue before the jury and stripping the evidence of this context would be confusing. I excluded Caterpillar's proffered expert, Paul Bartkowski, who Caterpillar offered to opine on the ITC proceeding.

Wirtgen submitted Dr. Pallavi Seth as its damages expert. She estimated a reasonable royalty that Caterpillar would have paid to Wirtgen if Wirtgen and Caterpillar had engaged in a hypothetical negotiation on the eve of the first alleged infringement. Caterpillar filed a motion to exclude Dr. Seth's testimony. After a hearing with counsel for the Parties, I ruled that Dr. Seth's reasonable royalty analysis was deficient. I concluded that

⁵ Caterpillar asserted counterclaims against Wirtgen for patent infringement. Discovery on Caterpillar's counterclaims is ongoing.

Dr. Seth didn't properly apportion her reasonable royalty, even though the law required her to do so. I left open the possibility for Dr. Seth to offer an opinion that did not run afoul of my ruling.

Wirtgen then served a supplemental damages report. Caterpillar moved to exclude that report based on its timing and as to the substance of Dr. Seth's methodology. As to the former, Dr. Seth's supplemental report qualified as an untimely disclosure, so I analyzed whether to exclude the report after analyzing the *Pennypack* factors. *See ZF Meritor, LLC v. Eaton Corp.*, 696 F.3d 254, 298 (3d Cir. 2012). Caterpillar identified the prejudice it would suffer as the lost opportunity to raise a *Daubert* challenge to Dr. Seth's forward patent citation and Rubenstein bargaining model methodology, but it did not identify any other problems with the late disclosure. (*See* D.I. 326 at 6.) I found that Dr. Seth's testimony was critically important to Wirtgen's case and that Caterpillar would suffer minimal prejudice. For Caterpillar's *Daubert* challenge, I concluded that Dr. Seth had removed the offending portion of her analysis and that Caterpillar's other arguments went to weight and not admissibility. As a result, I denied Caterpillar's motion to exclude, and Dr. Seth testified at trial.

In February 2024, Wirtgen tried its case against Caterpillar before a jury. Relevant to these Motions, Wirtgen called the following expert witnesses: Dr. John H. Lumkes; Dr. John Meyer; Dr. Christopher Rahn; Dr. Ricardo Valerdi; and Dr. Seth. Caterpillar presented expert testimony from Dr. Richard Klopp, Dr. Adam Sorini, and Dr. Andrew

Smith. The jury also heard testimony from Eric Engelmann, an engineering manager at Caterpillar.

During trial, both Parties moved for JMOL. I denied both Motions. On February 22, 2024, the jury returned its verdict. It found that Wirtgen proved that Caterpillar willfully infringed five of its patents (the '309, '641, '530, '788, and '972 Patents) and that none of those patents is invalid. The jury also found that the '268 Patent is invalid as obvious. The jury awarded Wirtgen a total of \$12,990,204.96. (*See* D.I. 346.)

Following the jury's verdict, both Parties filed post-trial motions. Caterpillar seeks JMOL as to (1) Wirtgen's claims of infringement of the '641 Patent (Claim 11), the '788 Patent (Claim 5), the '972 Patent (Claim 12), the '309 Patent (Claim 29), the '530 Patent (Claims 5 and 22), (2) its claim of invalidity as to the '641, '972 and '788 Patent, and (3) the jury's finding of willfulness. It also seeks to set Wirtgen's damages award to zero. In the alternative, Caterpillar seeks a new trial on willfulness. Wirtgen seeks JMOL as to (1) its claim of infringement of the '268 Patent and (2) Caterpillar's claim of invalidity. In the alternative, Wirtgen moves for a new trial with respect to infringement and invalidity of Claim 32 of the '268 Patent. In a separate post-trial motion, Wirtgen moves for enhanced damages, attorneys' fees, injunction or ongoing royalties, and other relief. (*See* D.I. 371.) All three Motions are ripe for disposition.

II. JMOL/NEW TRIAL MOTIONS

A. Legal Standard

1. Renewed JMOL

The Federal Rules of Civil Procedure permit a court to enter judgment as a matter of law against a non-moving party before the case is submitted to the jury where “the court finds that a reasonable jury would not have a legally sufficient evidentiary basis to find for the party on [an] issue[.]” Fed. R. Civ. P. 50(a)(1)(B). Where, as here, the court denies a motion under Rule 50(a), the movant may file a renewed motion for JMOL after trial. *See* Fed. R. Civ. P. 50(b). In patent cases, district courts apply the law of the regional circuit to JMOL motions. *See SRI Int’l, Inc. v. Cisco Sys., Inc.*, 930 F.3d 1295, 1308 (Fed. Cir. 2019).

In the Third Circuit, the standard for post-trial motions for JMOL differ according to whether the movant has the burden of proof. When the non-movant has the burden of proof, motions for JMOL are granted “sparingly” and only where ‘the record is critically deficient of the minimum quantum of evidence’ in support of the verdict.” *Eshelman v. Agere Sys., Inc.*, 554 F.3d 426, 433 (3d Cir. 2009) (quotation omitted). Thus, such motions “may be granted ‘only if, viewing the evidence in the light most favorable to the nonmovant and giving it the advantage of every fair and reasonable inference, there is insufficient evidence from which a jury reasonably could find liability.’” *Mancini v. Northampton Cnty.*, 836 F.3d 308, 314 (3d Cir. 2016) (quotation omitted).

When the movant has the burden of proof, JMOL is only granted where ‘there is insufficient evidence for permitting any different finding.’” *Amgen Inc. v. Hospira, Inc.*, 944 F.3d 1327, 1333 (Fed. Cir. 2019) (quoting *Fireman’s Fund Ins. Co. v. Videofreeze Corp.*, 540 F.2d 1171, 1177 (3d Cir. 1976)). In resolving the motion, a court “may not weigh the evidence, determine the credibility of witnesses, or substitute [its] version of the facts for the jury’s version.” *Mancini*, 836 F.3d at 314 (quotation omitted). The court must draw all reasonable inferences in favor of the nonmoving party. *See Lightning Lube, Inc. v. Witco Corp.*, 4 F.3d 1153, 1166 (3d Cir. 1993).

2. New trial

Where a court denies a motion for JMOL under Rule 50(a), the movant may request a new trial under Rule 59. *See* Fed. R. Civ. P. 50(b). Rule 59 permits a court to grant a new trial on all or some of the issues for any reason for which a federal court has granted a new trial. *See* Fed. R. Civ. P. 59(a)(1)(A). In patent cases, district courts apply the law of the regional circuit to motions for a new trial. *See Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 843 F.3d 1315, 1326 (Fed. Cir. 2016).

In the Third Circuit, a court should grant a new trial “only when ‘the great weight of the evidence cuts against the verdict and ... [] a miscarriage of justice would result if the verdict were to stand[.]’” *Leonard v. Stemtech Int’l Inc.*, 834 F.3d 376, 386 (3d Cir. 2016) (quotation omitted). The court may “not substitute its judgment of the facts and the credibility of the witnesses for that of the jury.” *Id.* at 386. In granting a motion for a

new trial on the basis of trial error, the judge must consider (1) whether an error was in fact committed and (2) whether that error was so prejudicial that denial of a new trial would be inconsistent with substantial justice. *See Farra v. Stanley-Bostitch, Inc.*, 838 F. Supp. 1021, 1026 (E.D. Pa. 1991), *aff'd* 31 F.3d 1171 (3d Cir. 1994) (table of cases); *see also Ponzini v. Monroe Cty.*, 789 Fed. App'x 313, 315-16 (3d Cir. 2019).

B. Caterpillar's Motion

1. Infringement

a. The '641 Patent

A party asserting induced infringement must prove that: (1) a third party directly infringed the asserted claims of the patent; (2) the alleged infringer induced those infringing acts; and (3) the alleged infringer knew the acts it induced constituted infringement. *See Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 843 F.3d 1315, 1332 (Fed. Cir. 2016); 35 U.S.C. § 271(b). The defendant must have "knowingly induced infringement and possessed specific intent to encourage another's infringement." *Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1363 (Fed. Cir. 2012) (citations omitted). A plaintiff may prove intent by circumstantial evidence. *See Water Techs. Corp. v. Calco, Ltd.*, 850 F.2d 660, 669 (Fed. Cir. 1988). Intent is a "quintessential jury question[]." *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1222 (Fed. Cir. 2014).

Claim 11 of the '641 Patent is a method claim that, relevant here, requires the machine to shut down its rotor when the milling drum falls below a pre-determined

distance between it and the ground. The patent covers a machine that monitors the distance between the drum and the ground, which can happen "either directly or indirectly." ('641 Patent at 2:57-64.) "[I]ndirect measuring of the distance can be effected, for instance, via machine elements of the construction machine, via tracers or via the actual position of the lifting column carrying the machine frame." (*Id.*)

The jury heard sufficient evidence that the Accused Machines monitor a distance, as the '641 Patent requires. Caterpillar's machines measure the side plate position and the moldboard relative to the drum. (Tr. 394:20-395:11.) This monitoring is intended to prevent the rotor from hitting the ground surface. The rotor shuts off when the moldboard and sideplates are raised by more than 50 mm. That shutoff is automatic. From this, the jury could conclude that the Accused Machines indirectly monitor a pre-determined distance by measuring the height of the moldboard and sideplates.

Caterpillar nonetheless submits that there was insufficient evidence at trial for the jury to find (i) direct infringement by a machine user and (ii) Caterpillar's specific intent to induce a user's infringement. Testimony from Mr. Engelmann and Dr. Meyer supports a finding of direct infringement. Mr. Engelmann testified that customers drive backwards in the Accused Machines with the rotor running. (Tr. 404:14-21; 392:25-393:6.) Wirtgen's expert, Dr. Meyer, testified that when a customer drives in reverse with the milling drum rotating, the reverse-shutoff feature in the machine engages automatically. (Tr. 699:18-700:12.) Dr. Meyer testified that he had "seen video of Caterpillar customers operating

this machine in that fashion.” (*See id.*) Given this evidence, the jury could credit Dr.

Meyer’s opinion that the claimed method is necessarily practiced when customers drive in the manner Mr. Engelmann described or Dr. Meyer witnessed.

As for intent, Mr. Engelmann testified that a customer could not remove or disable the reverse shut-off feature on the Caterpillar machines. (Tr. 396:24-397:3.) Dr. Meyer testified that the reverse shut-off feature was preprogrammed into the machines. From that, the jury could reasonably infer that Caterpillar intended to induce infringement. As a matter of law, “a failure to remove or diminish infringing features of a distributed product is relevant to a party’s intent that those features be used for direct infringement.” *Ricoh Co. v. Quanta Computer Inc.*, 550 F.3d 1325, 1343 (Fed. Cir. 2008). If the jury believed that Caterpillar sold a product with the infringing feature baked in, it could find induced infringement.⁶

⁶ I am not convinced that the instructions in the technical manuals support the jury’s finding. Instructions are probative of specific intent when they evince “intent to encourage infringement.” *Vita-Mix Corp. v. Basic Holding, Inc.*, 581 F.3d 1317, 1329 (Fed. Cir. 2009). However, instructions that only “describe an infringing mode is not the same as recommending or encouraging” an infringing use. *Takeda Pharms. U.S.A., Inc. v. W.-Ward Pharm. Corp.*, 785 F.3d 625, 630–31 (Fed. Cir. 2015) (cleaned up). The technical manuals that Dr. Meyer cites do not recommend an infringing use. The manual only explains that “[a]n automatic rotor disengagement feature detects a condition where the rotor could come in contact with a surface while the machine is traveling in reverse. If this rotor exposure is detected, the rotor drive is disengaged.” (*See* Exs. 368.0360; 757.0342.) There is no directive, only an explanation of how the reverse shut-off feature functions.⁶ “Merely describing the infringing use ... will not suffice” to establish induced infringement. *HZNP Medicines LLC v. Actavis Lab’ys UT, Inc.*, 940 F.3d 680, 702 (Fed. Cir. 2019).

Caterpillar presented evidence that its express instructions to customers is to raise the machine when driving in reverse, thus avoiding the need for the reverse shut-off feature to engage. The jury could have concluded based on that evidence that Caterpillar didn't intend to induce infringement, but it didn't have to reach that conclusion. Instead, the jury could also have inferred Caterpillar's specific intent to induce infringement by incorporating a feature in its machines that a user cannot disable and that will necessarily infringe. Thus, on this record, I cannot say that there was insufficient evidence for the jury to find in Wirtgen's favor.

b. The '788 Patent

The '788 Patent relates to a road construction machine with a leveling device to ensure that milling produces an even surface. Relevant here, the invention claims a machine capable of swapping between sensors without interrupting the milling process. Claim 5 depends on Claim 1 and recites a road milling machine wherein "the switchover device and the one of the indication and setting devices associated with the replacement sensor are operable to pre-select the replacement sensor and to pre-set the operating parameter of the replacement sensor prior to effecting the switchover." ('788 Patent at 7:64-8:2 (emphasis added).)

Wirtgen's experts opined that the Accused Machines pre-set an operating parameter, have a switchover device, and display a current actual value. Thus, I can't

agree with Caterpillar's contention that there was insufficient evidence that the Accused Machines practice the patent.

Pre-set: At trial, the Parties introduced a flowchart that depicted the steps that occur during a sensor swap in the Accused Machines. (*See generally* Tr. 528:2-20 (introducing Ex. 264A).) Both sides presented extensive testimony to explain this flowchart. Wirtgen's experts, Drs. Valerdi and Rahn, opined that the setting of sensors occurred at the portion of the diagram titled "[b]ench [f]unction." (Tr. 774:17-775:8 (describing Ex. 264A).) Then the sensor is selected after that step, at "[r]esume [a]uto / [c]omplete." (*See id.*; Tr. 775:9-14.) The jury was free to believe Wirtgen's theory that the bench function sets the operating parameter prior to the switchover.

Switchover Device: Claim 1 of the '788 Patent requires the machine have a "switchover device" which, based upon the Parties' agreed-upon construction, I construed as "[c]ontroller input and output switch." (D.I. 182.) Caterpillar interprets this as requiring Wirtgen to prove that there is "one digital 'controller input and output switch' effectuating the switchover." (D.I. 381 at 6.) But the claim language is not so limited. Thus, the jury could credit Dr. Rahn's opinion that "the switch over device is a series of selections by the operator" on the display in the Accused Machines. (Tr. 817:16-818:8.)

Current Actual Values: Claim 1 also requires that the sensors sense and indicate "current actual values." Dr. Rahn testified that the Accused Machines display actual

values. (Tr. 804:25-805:13; 868:18-869:5.) The jury could believe this testimony even if Dr. Rahn did not undertake a signal process analysis to determine how the sensors calculated those values. Caterpillar argues that it takes the machines time to process sensor values before those values are displayed so the values cannot be "current." This disagreement does not change the fact that Dr. Rahn testified that this claim language was, in his opinion, satisfied. The jury was free to disregard the milliseconds-length delay to which Caterpillar refers. Thus, there is sufficient record evidence for the jury to credit and find infringement.

c. The '972 Patent

The '972 Patent recites a method for a road milling machine to position its machine frame parallel to the ground automatically. Claim 12 depends on Claim 1 and recites a road milling machine comprising of "a controller ... being configured to automatically control a lifting condition of at least one of the lifting columns to establish a parallel orientation of the machine frame relative to the ground surface in the direction of travel." ('972 Patent at 12:12-17.)

Wirtgen's experts, Drs. Lumkes and Valerdi, opined that the Accused Machines establish a parallel orientation automatically, as the claim requires. (Tr. 606:5-12; 612:20-613:9; 615:10-19.) Dr. Lumkes testified that the machines have a "creep-to-inclination" feature that results "in the machine automatically going back to parallel-to-surface orientation." (Tr. 614:18-25.) Dr. Valerdi testified that Dr. Lumkes based his opinion on

an accurate representation of what occurs in the Accused Machines based on his review of the source code. (Tr. 778:7-11.)

It's immaterial that Dr. Valerdi also testified that *before* the machine deploys its creep-to-inclination feature, the operator must calibrate the machine. I will assume *arguendo* that "automatically" in this patent means "without human intervention," as Caterpillar submits. The claim language requires automation at the time that the machine establishes a parallel orientation relative to the ground. What's needed before the positioning to parallel does not disturb a finding of infringement. Indeed, the Federal Circuit has held that infringement is possible when a machine requires user intervention to initiate an automatic process. *See Z4 Techs., Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1350 (Fed. Cir. 2007). One district judge explained this seemingly-obvious point: "'automatic' operation does not preclude *any* user involvement, such as in physically connecting devices or providing electrical power." *Papst Licensing GmbH & Co. KG v. Apple Inc.*, No. 6:15-CV-01095, 2017 WL 897172, at *18 (E.D. Tex. Mar. 7, 2017) (emphasis in original).

Also, despite Caterpillar's argument, it's not relevant that user error might result in a machine being at an orientation other than parallel. (*See* D.I. 381 at 8-9.). First, Caterpillar reaches its conclusion for this hypothetical scenario about an operator's miscalibration by attorney argument, not a fact established in the trial record. Even if the conclusion is sound, the jury could still find infringement. "[I]nfringement is not avoided

merely because a non-infringing mode of operation is possible." *Z4 Techs., Inc.*, 507 F.3d at 1350. "[A] patent that claims an automobile configured to operate in third gear would be infringed by an automobile that is configured to operate in first, second, and third gears. The automobile is at all times configured to operate in any one of its possible gears, including the infringing one, even if the automobile is never driven in the infringing gear." *Core Wireless Licensing S.A.R.L. v. Apple Inc.*, 899 F.3d 1356, 1363 (Fed. Cir. 2018). This case is no different. The Accused Machines are operable to position their machine frames relative to the ground automatically using the creep-to-inclination feature even if the operator misuses that feature.

d. The '309 Patent

The '309 Patent discloses a stability pattern for road milling machines that is useful when those machines travel on uneven terrain. Claim 29 recites a machine with "a four sided stability pattern having a widest transverse dimension, transverse to the forward direction of the chassis, which widest transverse dimension falls within a footprint of the working roller or rotor." ('309 Patent at 14:33-36.)

At trial, Dr. Lumkes opined that the Accused Machines practice Claim 29 of the '309 Patent. He testified that the Machines' hydraulic coupling produces a four-sided stability pattern and that their stability pattern falls within the rotor. In his view, the Accused Machines' stability pattern "had to occur at the midpoints of the legs, since all

the cylinders are equal value ... [which] is going to cause that pivot point to be in the middle of those legs." (Tr. 596:4-24.)

Dr. Lumkes evaluated CAD drawings of the Accused Machines to determine that the stability pattern fell within the footprint of the rotor. The CAD model, which Caterpillar provided in discovery, is a "very detailed, very large file, down to the nuts and washers and bolts on the machine" and is "a blueprint for which the machine is built from." (Tr. 597:3-7.) It allowed Dr. Lumkes to measure the dimensions of the PM620. Dr. Lumkes also inspected certain Caterpillar machines and took measurements "to confirm that the dimensions that were on the CAD file ... were correct." (Tr. 601:14-17.)

Caterpillar argues that Dr. Lumkes failed to rule out deviations that the patent teaches could influence the stability pattern, so the jury couldn't credit his testimony. Caterpillar made the jury aware of this purported gap between Dr. Lumkes's method and conclusion. The jury could have credited that, but it didn't, and its choice was reasonable. A conclusion need not rule out every possible scenario to be credible. Thus, the jury could believe Dr. Lumkes's opinion. I cannot say that Dr. Lumkes's opinion is so lacking as a matter of law that the jury could not rely on it to find infringement.

e. The '530 Patent

The '530 Patent relates to a lifting column for a construction machine. Claims 5 and 22 depend on Claim 1. Claim 1 recites a road construction machine with "lifting

position sensors” that are each “coupled with elements of one of the lifting columns.”
(‘530 Patent at 8:4-6.)

Dr. Lumkes opined that the “lifting position sensor” in the Accused Machines includes three components: the sensor head; the sensor rod; and a magnet. (Tr. 630:7-23; 633:1-8.) He testified that a person of ordinary skill in the art would consider the sensor to include all three components, as that’s how Dr. Lumkes teaches his students about sensing terms. He then identified the sensor as being coupled with two components in the lifting column as required by my construction of the claim language.

To Caterpillar, the sensor and the magnet are distinct. (*See, e.g.*, Tr. 1694:18-21.) But the jury was free to weigh Caterpillar’s interpretation of what constitutes a lifting position sensor against Dr. Lumkes’s testimony. Dr. Lumkes based his opinion on his expertise in the field of off-highway vehicle design and controls. I cannot say that his testimony was sufficiently lacking in support that the jury erred in relying on it.

Claim 22 recites the road construction machine of Claim 1 with a device “*operable to display* the lifting positions of each of the lifting columns corresponding to the signals produced by the lifting position sensors.” (‘530 Patent at 9:44-48 (emphasis added).) Dr. Sorini conceded on cross-examination that the device at issue could display the lifting position of each lifting column individually, if the operator scrolled down on the screen. (Tr. 1755:3-1756:18 (discussing Exs. 4656 and 4657).) The claim language requires that the device *is operable* to display the positions. It does not require that the

device display the positions on a single screen. Thus, the jury could have relied on this testimony when deciding infringement.

Caterpillar says that I can't consider Dr. Sorini's testimony because it occurred after Wirtgen's case-in-chief. Caterpillar raises this issue in a footnote, but my Policies and Procedures are clear. I do not consider substantive arguments raised in footnotes. Further, as a matter of law, this contention is incorrect. I must consider all evidence presented at trial, including Dr. Sorini's testimony. *See Trs. Of the Univ. of Pa. v. Lexington Ins. Co.*, 815 F.2d 890, 903 (3d Cir. 1987); *Fussell v. Pokropski*, No. CV 16-6708 (NLH/KMW), 2019 WL 13401900, at *4 (D.N.J. Aug. 30, 2019).

2. Willfulness

"[T]he concept of 'willfulness' requires a jury to find no more than deliberate or intentional infringement." *Eko Brands, LLC v. Adrian Rivera Maynez Enters., Inc.*, 946 F.3d 1367, 1378 (Fed. Cir. 2020). "Knowledge of the asserted patent and evidence of infringement is necessary, but not sufficient, for a finding of willfulness." *Bayer Healthcare LLC v. Baxalta Inc.*, 989 F.3d 964, 988 (Fed. Cir. 2021). The accused infringer's "culpability is generally measured against the knowledge of the actor at the time of the challenged conduct." *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 579 U.S. 93, 105 (2016). Factual questions pertaining to the willfulness determination are quintessential jury determinations. *See WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1341 (Fed. Cir. 2016); *see*

also Exmark Mfg. Co. Inc. v. Briggs & Stratton Power Prod. Grp., LLC, 879 F.3d 1332, 1353 (Fed. Cir. 2018).

a. The '309, '530 and '641 Patents

After the ITC held that Caterpillar infringed on the '309 and '530 Patents, and that it would infringe on the '641 Patent if someone in the United States used an Accused Machine, Caterpillar "continued to produce" machines containing infringing features as it designed workarounds. (Tr. 441:20-442:7.) It moved its production from Italy to the United States, which had the effect of avoiding the ITC's ruling. From Caterpillar's actions following the ALJ's decision, the jury could conclude that Caterpillar intentionally infringed the '309, '530, and '641 Patents.

Caterpillar cites other actions it took after the ITC's decision, including its redesigns. But these actions don't *negate* Caterpillar's domestication of production. Instead, the jury could credit Wirtgen's narrative that, as Caterpillar redesigned its machines, it continued to sell machines that it knows infringe.

For the '530 Patent, Caterpillar states that there wasn't evidence of its pre-suit knowledge of the patent. But at trial, Mr. Engelmann testified that he received a Thompson Reuters report with the '530 Patent "just before" this suit was filed. (Tr. 504:23-505:20.) Even when I credit the interrogatory read into evidence that Caterpillar first became aware of that patent on the same day this case was filed, nothing changes. (Tr. 364:20-21.) I have previously held that a case's complaint can't by itself establish the

requisite knowledge of an infringement to support a finding of willfulness. *See Pact XPP Schweiz AG v. Intel Corp.*, No. 1:19-CV-01006-JDW, 2023 WL 2631503, at *5 (D. Del. Mar. 24, 2023), *reconsideration denied*, No. 1:19-CV-01006-JDW, 2023 WL 3934058 (D. Del. June 9, 2023). But I can't infer the Complaint was the only occurrence that notified Caterpillar of the '530 Patent. In this posture, I draw inferences in Wirtgen's favor, not Caterpillar's. If Mr. Engelmann received his monthly patent alert summary earlier that day, for instance, Caterpillar's knowledge of the patent would not have been solely derived from the Complaint.

b. The '788 and '972 Patents

"[A]lthough a party may lawfully copy unpatented products, pre-issuance copying may still be 'relevant evidence to support a theory of willfulness.'" *Purewick Corp. v. Sage Prod., LLC*, 666 F. Supp. 3d 419, 441 (D. Del. 2023), *appeal dismissed*, No. 2023-1868, 2023 WL 4230367 (Fed. Cir. June 28, 2023), *and appeal dismissed*, No. 2024-1184, 2024 WL 889332 (Fed. Cir. Mar. 1, 2024) (quoting *Nox Med. Ehf v. Natus Neurology Inc.*, No. 15-709-RGA, 2018 WL 6629704, at *2 (D. Del. Apr. 12, 2018)); *see also Sonos, Inc. v. D&M Holdings Inc.*, No. CV 14-1330-WCB, 2017 WL 5633204, at *3 (D. Del. Nov. 21, 2017) (collecting cases). Thus, Caterpillar's 2010 teardown of Wirtgen's machines could support a willfulness finding as to the '788 and '972 Patents.

Years elapsed between the teardown and the commercial development of the machines that infringe the '972 Patent. To Caterpillar, this nullifies the teardown's

probative value to any reasonable juror. I can't agree. If the jury determined that Caterpillar copied Wirtgen's technology with the teardown, it's no matter if the product was released the next day or ten years later. Either way, it's still a copy. The jury could have credited Wirtgen's narrative that the 2010 teardown supports a finding of deliberate infringement.

As to the '788 Patent, Caterpillar didn't know of Wirtgen's infringement allegations at the time it infringed, but that doesn't matter. Caterpillar knew of the '788 Patent in 2013. Thus, the jury could find that Caterpillar "(1) knew of the patent-in-suit; (2) after acquiring that knowledge, it infringed the patent; and (3) in doing so, it knew, or should have known, that its conduct amounted to infringement of the patent." *Tonal Sys., Inc. v. ICON Health & Fitness, Inc.*, No. CV 20-1197-LPS, 2021 WL 1785072, at *6 (D. Del. May 5, 2021), *report and recommendation adopted*, No. CV 20-1197-LPS, 2021 WL 5860783 (D. Del. Aug. 12, 2021). Those elements (and not knowledge of the patentee's infringement *allegations*) are necessary to support a finding of willfulness.

c. New trial

In the alternative, Caterpillar seeks a new trial based on statements about the ITC record and other evidentiary issues during trial. Neither of Caterpillar's arguments demonstrates that "a miscarriage of justice would result if the verdict were to stand[.]" *Leonard*, 834 F.3d at 386.

ITC: Caterpillar claims that Wirtgen injected misleading statements into the trial about the ITC proceedings. But the singular example it cites is Wirtgen's suggestion that the ITC found the '641 Patent infringed. (*See* D.I. 381 at 19-20.)

First, this suggestion is neither false nor affirmatively misleading. Initially, the ITC found no violation with respect to the '641 Patent. *See Caterpillar Prodotti Stradali S.R.L.*, 847 F. App'x at 894. But the Federal Circuit reversed that decision, and on remand the ITC modified its exclusion order to include the '641 Patent. While the ITC's finding of infringement came later, there eventually was such a finding. Thus, Wirtgen's statements about the ITC proceeding are supported by the factual record. Just because Caterpillar disagrees with the characterization of this evidence does not mean it was improper.

Second, even if I agreed that this procedural nuance needed clarification, Caterpillar points only to one line of questioning during Dr. Seth's redirect and two statements during Wirtgen's closing that did not account for it. I instructed the jury that statements by lawyers, including during opening statements and closing arguments, do not constitute evidence and that the jury should decide the case based on the evidence. Such a limiting instruction negates potential prejudice suffered from improper remarks during openings and closings. *See Edwards v. City of Phila.*, 860 F.2d 568, 575 (3d Cir. 1988); *see also Vandenbraak v. Alfieri*, 209 F. App'x 185, 190 (3d Cir. 2006). Three instances of potential oversimplification of the procedural history in the ITC proceeding,

only one of which occurred during the presentation of evidence, does not necessitate a new trial.

Caterpillar was on notice that I would permit the Parties to introduce factual evidence about the ITC proceedings. (*See* D.I. 319.) The ITC proceedings were relevant to Wirtgen's claims and Caterpillar's defenses. I was aware that the ITC's finding of infringement could be prejudicial to Caterpillar, so during trial I enforced certain guardrails to ensure that this prejudice would not outweigh its probative value. I fielded objections regarding ITC evidence. (*See, e.g.*, Tr. 677:4-25; Tr. 720:1-6.) I instructed the jury that any ITC determination was not binding on its resolution of the facts. (Tr. 109:5-10; 2078:10-20.) And I must assume the jury understood and followed the instructions it received. *See O'Brien v. Middle East Forum*, 57 F.4th 110, 122 (3d Cir. 2023). The Parties reminded the jury of this fact. (*See, e.g.*, Tr. 2168:23-2169:7.) With this context in mind, Caterpillar's sole argument about the '641 Patent is unavailing.

Other Evidentiary Issues:

Caterpillar points to several evidentiary issues that it contends justify a new trial as to willfulness with respect to the '641 Patent, but it does so in a cursory way, without analysis of the evidentiary rulings or the surrounding context. (*See* D.I. 381 at 20.) It just points to the rulings and says I shouldn't have ruled the way that I did. "An undeveloped argument in a brief is waived." *New Jersey Bldg. Laborers Statewide Ben. Funds v. Perfect Concrete Cutting*, Civ. A. No. 2:10-1540, 2010 WL 2292102, at *1 (D.N.J. June 2,

2010); *see also Clay v. Holy Cross Hosp.*, 253 F.3d 1000, 1002 n.1 (7th Cir. 2001); *SmartGene, Inc. v. Advanced Biological Labs, SA*, 555 Fed. App'x 950, 954 (Fed. Cir. 2014). For that reason alone, I deny the motion for a new trial with respect to these evidentiary issues.

Even if I were to reach the merits, there's no reason for me to grant a new trial. Caterpillar has not identified any erroneous evidentiary rulings, let alone rulings that prejudiced it. Caterpillar complains that I sustained objections to questions about its state of mind. But Caterpillar does not explain why any of those rulings was wrong. I don't see a reason to think they were, and it's not my job to hypothesize reasons that they might have been. In any event, the record—particularly the transcript from February 14, 2024—demonstrates that Caterpillar had the opportunity to present substantial evidence to the jury about its state of mind and good faith intentions. Caterpillar has not shown that the answers to these few additional questions would have tipped the balance, which means it has not shown prejudice. There's therefore no need for me to grant a new trial.

3. Damages

a. Untimely *Daubert* motion

For both procedural and substantive reasons, I will deny Caterpillar's request to exclude Wirtgen's evidence of damages and set damages at zero. Dr. Seth testified about a royalty range for Caterpillar's infringement, and the jury was free to credit or

discredit her testimony. Ultimately, the jury awarded damages of \$12.9 million for the infringement of five patents, at the bottom of her royalty range. Therefore, as the JMOL standard requires, there was sufficient evidence on the record for a reasonable juror to find in Wirtgen's favor and award damages. Caterpillar doesn't argue otherwise.

Rather, Caterpillar challenges Dr. Seth's use of a forward patent citation analysis and a modified Rubenstein bargaining model and seeks to set damages to zero. Caterpillar submits that Dr. Seth's damages opinion rests on a faulty methodology and, as a result, the jury could not rely on her testimony and Wirtgen did not prove its damages. Though Caterpillar does not style this portion of its Motion as a *Daubert* challenge, it is. *See generally* Fed. R. Evid. 702 (requiring an expert to use a reliable methodology).

Procedurally, it is too late for a *Daubert* challenge. "Whether proffered evidence should be admitted in a trial is a procedural issue not unique to patent law," and thus regional circuit law applies. *Micro Chem., Inc. v. Lextron, Inc.*, 317 F.3d 1387, 1390–91 (Fed. Cir. 2003). The time to file a motion to exclude Dr. Seth's testimony was well before the trial. *Daubert* issues are often complex. I, like all judges, have an inherent power to manage the docket in cases before me. To give *Daubert* issues the thoughtful attention that they require, there was a deadline for parties to file *Daubert* challenges and motions *in limine* before trial. Because Caterpillar's current *Daubert* challenge is untimely, Caterpillar needs to show good cause as to why it could not have made this

challenge earlier. *See* Fed. R. Civ. P. 16(b)(4); *see, e.g., Carnegie Mellon Univ. v. Marvell Tech. Grp., Ltd.*, No. CIV.A. 09-290, 2012 WL 6562221, at *10 (W.D. Pa. Dec. 15, 2012), *aff'd*, 807 F.3d 1283 (Fed. Cir. 2015) (finding good cause before addressing an untimely *Daubert* challenge). It can't.

With respect to the forward patent citation analysis and the Rubenstein bargaining model, Dr. Seth did not change her methodology between her initial report (which I excluded) and her supplemental report (which I allowed). Caterpillar brought a timely *Daubert* challenge against Dr. Seth and could have challenged these aspects of her opinions when it moved. It elected not to do so. A party's change in strategy does not satisfy the good cause standard. *See Edgewell Pers. Care Brands, LLC v. Albaad Massuot Yitzhak, Ltd.*, No. CV 15-1188-RGA-MPT, 2017 WL 2459645, at *2 (D. Del. June 7, 2017). Its failure waives the challenge. I therefore conclude that Caterpillar's motion at trial to exclude Dr. Seth's testimony was untimely.

I also can't set damages at zero because, upon a finding of infringement, a court "*shall* award ... no ... less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court." 35 U.S.C. § 284 (emphasis added). Accordingly, "a patentee's failure to show that its royalty estimate is correct is insufficient grounds for awarding a royalty of zero." *Info-Hold, Inc. v. Muzak LLC*, 783 F.3d 1365, 1372 (Fed. Cir. 2015). When a patentee fails to prove its damages, a new trial may be the appropriate remedy. *See, e.g., Mondis Tech. Ltd v. LG Elecs., Inc.*,

No. CV 15-4431 (SRC), 2020 WL 1933979, at *4 (D.N.J. Apr. 22, 2020). But Caterpillar hasn't asked for that relief and, for the reasons set forth below, a new trial on damages is unnecessary.

b. Merits

Even if I were to consider Caterpillar's arguments about Dr. Seth, I would conclude that they go to the weight accorded to her testimony, not its admissibility. That's the same conclusion that I reached when I considered these same arguments before the trial. (D.I. 326 at 10.) Caterpillar gives me no reason to change my mind post-trial.

"Forward citation analysis is a method of estimating the value of a particular patent based on the number of times the patent is cited by later patents." *Comcast Cable Commc'ns, LLC v. Sprint Commc'ns Co., LP*, 218 F. Supp. 3d 375, 382 (E.D. Pa. 2016). A forward patent citation analysis may be a reliable methodology so long as the analysis is tied to the facts of the case. *See Mfg. Res. Int'l, Inc. v. Civiq Smartscapes, LLC*, No. CV 17-269-RGA, 2019 WL 4198194, at *2 (D. Del. Sept. 4, 2019) (collecting cases).

Caterpillar takes aim at Dr. Seth's assumption of Caterpillar's practice rates of its own patents. But Dr. Seth made a permissible assumption that Caterpillar practices its own patents at the same rate that Wirtgen does. She based her assumption on the behavior of a competitor in the same market, so it's tied to the facts of this case. *See Mfg. Res. Int'l, Inc.*, 2019 WL 4198194, at *3. Further, Dr. Seth analyzed three alternative

apportionment measures and settled on a family-forward citation analysis. Based on this consideration, Dr. Seth's citation analysis is not "arbitrar[y,]" even if Caterpillar doesn't accept its factual predicate. (D.I. 381 at 23.)

At trial, Caterpillar's damages expert testified that he understood Dr. Seth's Rubenstein bargaining model to account for unpatented contributions like Caterpillar's service and support. (*See* Tr. 1842:6-15, *see also* Tr. 925:22-927:2.) This contradicts Caterpillar's argument that Dr. Seth never associated her bargaining model with apportionment. To the extent that her bargaining model doesn't further apportion damages, that's also acceptable. It's undisputed that her forward patent citation analysis accounts for the value of patented and unpatented features of the Accused Machines. I'm not convinced that her forward patent citation, in and of itself, didn't properly apportion damages. Caterpillar could use these arguments to diminish Dr. Seth's standing in front of the jury. But it's not entitled to have the testimony excluded.

4. Invalidity

Caterpillar, the movant, bears the burden of proving invalidity of Wirtgen's patents. Accordingly, granting JMOL is only appropriate where 'there is insufficient evidence for permitting any different finding.'" *Amgen Inc.*, 944 F.3d at 1333 (quoting *Fireman's Fund Ins. Co.*, 540 F.2d at 1177).

a. The '641 Patent

Under 35 U.S.C. § 102(b), a patent is invalid as anticipated if "the invention was patented or described in a printed publication in this or a foreign country ... more than one year prior to the date of the application for patent in the United States." "[T]he anticipation inquiry proceeds on a claim-by-claim basis." *Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967, 974 (Fed. Cir. 2010). "Anticipation is a factual determination that is reviewed for substantial evidence when decided by a jury." *Koito Mfg. Co. v. Turn-Key-Tech, LLC*, 381 F.3d 1142, 1149 (Fed. Cir. 2004).

Caterpillar contends that its PM465's kickback ski device anticipated the method recited in Claim 11 of the '641 Patent. At trial, Caterpillar had the burden of proving invalidity by clear and convincing evidence. When pressed, Caterpillar's expert, Dr. Klopp, stated that "the best [he] can say" is that "it's more likely than not" that the PM465 performed every step of Claim 11 prior to the patent's priority date. (Tr. 1162:4-11.) From this admission, the jury could have found that Caterpillar failed to carry its burden. Caterpillar presented other evidence by way of engineer testimony and technical operating documents. But a reasonable juror could have concluded that this evidence didn't fill in the gap to meet Caterpillar's high burden of proof.

b. The '972 Patent

Caterpillar proffered that its PM565 anticipated Claim 13 of the '972 Patent. Wirtgen's expert, Dr. Lumkes, opined that the PM565 did not anticipate the claim

because the machine did not “automatically” establish a parallel orientation. (Tr. 1910:13-25.) The jury could have believed Dr. Lumkes’s testimony as to the capability of the PM565 to support its finding that the patent was not invalid. *See Koito Mfg. Co.*, 381 F.3d at 1149.

There’s no contradiction with Wirtgen’s positions as to invalidity and infringement. The ‘972 Patent requires the machine automatically establish a parallel orientation with the ground. Wirtgen contended that the prior PM565 could not do so. The Accused Machines contain an updated feature compared to the PM565, an automatic rear leg control with creep-to-inclination functions. At trial, Wirtgen contended that the creep-to-inclination function is what infringes its patent.

c. The ‘788 Patent

Under 35 U.S.C. § 103(a), an invention cannot be patented if “the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” A party seeking to invalidate a patent based on obviousness must demonstrate “by clear and convincing evidence that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.” *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1361 (Fed. Cir. 2007). In reviewing a JMOL on obviousness, I “presume the jury resolved underlying factual disputes in favor of the verdict winner and

leave those presumed findings undisturbed if supported by substantial evidence.” *Apple Inc. v. Samsung Elecs. Co.*, 839 F.3d 1034, 1047 (Fed. Cir. 2016). What prior art teaches is a factual question. *See id.* at 1051; *see also W. Union Co. v. MoneyGram Payment Sys., Inc.*, 626 F.3d 1361, 1369 (Fed. Cir. 2010).

Caterpillar submitted that Claim 5 of the ‘788 Patent is obvious in light of two prior art sources (its PM465 and a prior-art patent called Davis). Claim 5 includes a presetting/selecting functionality. Caterpillar acknowledges that its PM465 does not include the presetting/selecting function. (*See* D.I. 381 at 14.) To Caterpillar, the function is only present in Davis. But Dr. Rahn, Wirtgen’s expert, disputed this opinion, explaining, “I don’t think that the Davis patent ... actually does include preselecting and presetting as a claim.” (Tr. 1891:9-18.) If the jury agreed with Dr. Rahn, then prior art did not teach the presetting/selecting function. Dr. Rahn’s testimony supports the jury’s finding of what prior art teaches, so I can’t disturb the verdict.

C. Wirtgen’s Motion

1. Invalidity

With obviousness, I “presume the jury resolved underlying factual disputes in favor of the verdict winner and leave those presumed findings undisturbed if supported by substantial evidence.” *Apple Inc.*, 839 F.3d at 1047. Caterpillar’s expert, Dr. Klopp, opined that Claim 32 of the ‘268 Patent would have been obvious over two prior art references (Caterpillar’s PM465 and a prior-art patent called “Braud”). The jury could

have, and did, credit Dr. Klopp's testimony. That's sufficient evidence for a jury to find invalidity.

Neither of Wirtgen's issues with Dr. Klopp's testimony changes this conclusion. *First*, the '268 Patent is a reissued patent with amended claim language compared to the original patent. Relevant here, the reissued claim requires a subset with three elements (a pump drive, a clutch, *and* a drive pulley). At times, Dr. Klopp relied on a demonstrative that included the original (and incorrect) claim language. That demonstrative and Dr. Klopp's associated testimony stated that the claim required just one of the three elements. But Dr. Klopp also testified that by making an obvious change to prior art "then you end up with the pump drive, clutch, drive pulley *altogether supported as a combined subset*," as the claim language recites. (Tr. 1123:3-12 (emphasis added).) The jury could have relied on this portion of his testimony in reaching its invalidity verdict. This is not a case where the record is devoid of the proper claim language. Nor is this a case where an expert has erroneously relied on a claim construction at odds with the court's ruling.

Second, a motivation to combine can arise from "any number of sources, including common knowledge, the prior art as a whole, or the nature of the problem itself." *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1361 (Fed. Cir. 2006). The motivation "need not be found in the references sought to be combined." *Id.* "[A]n implicit motivation to combine exists not only when a

suggestion may be gleaned from the prior art as a whole, but when the ‘improvement’ is technology-independent and the combination of references results in a product or process that is more desirable, for example because it is stronger, cheaper, cleaner, faster, lighter, smaller, more durable, or more efficient.” *Id.* at 1365. “When not from the prior art references, the ‘evidence’ of motive will likely consist of an *explanation* of the well-known principle or problem-solving strategy to be applied.” *Id.* at 1361. (emphasis in original). The jury’s determination of what prior art teaches is a factual question that I leave undisturbed if supported by substantial evidence. *See Apple Inc.*, 839 F.3d at 1047.

Neither prior art reference (the PM465 and Braud) has a torsionally flexible elastomeric coupling. This doesn’t doom Dr. Klopp’s analysis. Dr. Klopp testified that torsionally flexible elastomeric coupling was “nothing new.” (Tr. 1121:12-23.) It was used as early as the 1930s and in cars from the 1980s. Dr. Klopp testified that although this coupling wasn’t present in the PM465, “a mechanical engineer, a person of ordinary skill in the art at the time of the invention of the RE268 would have rubber couplings in [his] toolbox.” (Tr. 1121:12-23.) The jury heard that this technology was known in “the prior art as a whole,” which supports a finding of obviousness. *DyStar Textilfarben GmbH & Co. Deutschland KG*, 464 F.3d at 1361.

Of course, the bare invocation of “common knowledge” cannot supply the motivation to combine. *See Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1366 (Fed. Cir. 2016). But here, the jury heard extensive evidence that the rattling engine on a road

milling machine negatively impacts operator comfort. (*See, e.g.*, Tr. 325:7-326:14; 1100:6-17; 1826:4-20.) It also heard evidence that a torsionally flexible elastomeric coupling reduced vibrations, helping to solve that problem. (Tr. 846:8-19.) The jury could infer that a POSITA would be motivated to add this coupling to reduce vibrations. A smoother ride is a type of a technology-independent improvement that would implicitly motivate a POSITA. *See DyStar Textilfarben GmbH & Co. Deutschland KG*, 464 F.3d at 1365.

2. Infringement

There can be no infringement of an invalidated patent, so Wirtgen's infringement claim is a nullity. *See Commil USA, LLC v. Cisco Sys., Inc.*, 575 U.S. 632, 644 (2015). I therefore dispense with Wirtgen's arguments as to infringement only briefly. Wirtgen, the movant, bears the burden of proving infringement. Granting JMOL is only appropriate where 'there is insufficient evidence for permitting any different finding.'" *Amgen Inc.*, 944 F.3d at 1333 (quoting *Fireman's Fund Ins. Co.*, 540 F.2d at 1177). Wirtgen's JMOL argument three elements of Claim 32 of the '268 Patent: the attachment element, alignment element, and accommodation element. (*See* D.I. 377 at 1-2.)

As to the "attachment" element, Wirtgen's argument is belated claim construction that I rejected at the charge conference. (Tr. 2010:9-2014:10.) There's no reason for me to depart from my prior ruling. *See Hewlett-Packard Co. v. Mustek Sys., Inc.*, 340 F.3d 1314, 1321 (Fed. Cir. 2003) The time for Wirtgen to argue that the "attachment" element

also includes an indirect connection was during claim construction. It failed to do so, and there's no good cause for why I should entertain that untimely request now. The jury, therefore, could have credited Dr. Klopp's opinion that the drive engine in the Accused Machines is not "attached" to the machine frame as the claim language requires.

As to the alignment and accommodation elements, the jury could have disbelieved Dr. Rahn's opinion or credited Dr. Klopp's. Dr. Klopp testified that the Accused Machines do not practice these elements. (*See, e.g.*, Tr. 1106:15-1108:15.) Dr. Klopp testified that, in his opinion, Dr. Rahn's failure to measure the Accused Machines rendered Dr. Rahn's opinion unreliable. (*See, e.g.*, Tr. 876:12-24; 1105:14-1106:1.)

3. New trial

The jury's verdict as to the '268 Patent was not against the "great weight of the evidence." *Leonard*, 834 F.3d at 386. Thus, there's no need for a new trial.

III. WIRTGEN'S MOTION REGARDING REMEDIES

A. Enhanced Damages

1. Legal standard

When a jury finds damages resulting from patent infringement, "the court may increase the damages up to three times the amount found or assessed." 35 U.S.C. § 284. Enhanced damages are reserved for "egregious cases typified by willful misconduct" considering the totality of the circumstances. *Halo Elecs., Inc.*, 579 U.S. at 106. Wirtgen

has the burden of proving its entitlement to enhanced damages by a preponderance of the evidence. *See Idenix Pharms. LLC v. Gilead Scis., Inc.*, 271 F. Supp. 3d 694, 697 (D. Del. 2017).

I will apply the *Read* factors, consistent with how the Parties briefed the issue. *See Read Corp. v. Portec, Inc.*, 970 F.2d 816, 827–28 (Fed. Cir. 1992), *overruled on other grounds by Markman v. Westview Inst. Inc.*, 52 F.3d 967 (Fed. Cir. 1995); *see also Presidio Components, Inc. v. Am. Tech. Ceramics Corp.*, 875 F.3d 1369, 1382–83 (Fed. Cir. 2017). These factors include (a) whether the infringer deliberately copied the patentee's invention; (b) whether the infringer knew of the patents and had a good faith belief that it was not infringing or that the patents were invalid; (c) the infringer's behavior in litigation; (d) the infringer's size and financial condition; (e) whether it was a close case; (f) the duration of the infringing conduct; (g) remedial action taken by the infringer; (h) the infringer's motivation for infringement; and (i) whether the infringer attempted to conceal its misconduct. *See Read Corp.*, 970 F.2d at 827.

2. Discussion

a. Deliberate copying (factor 1)

"[C]opying requires evidence of efforts to replicate a specific product, which may be demonstrated through internal company documents, direct evidence such as disassembling a patented prototype, photographing its features, and using the photograph as a blueprint to build a replica, or access to the patented product

combined with substantial similarity to the patented product." *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010).

There is extensive direct evidence that Caterpillar deliberately copied Wirtgen's road milling machines. In 2010, Caterpillar engineers systematically tore down a Wirtgen W120. Caterpillar photographed the W120's features and modeled it on computer software. Caterpillar identified certain features of the W120 as those that would allow Caterpillar to "catch up" to its competition. (Tr. 418:6-22.) Caterpillar "look[ed] into ways of accomplishing [those] feature[s]" during its development process. (Tr. 422:2-24.) In sum, Caterpillar incorporated what it learned from the teardown in its development of its new generation of cold planers.

As *Read* instructs, this factor encompasses copying "ideas of another" and "not merely the elements of a patent claim." *Read*, 970 F.2d at 827 n.7. "A patent need not have issued before the ideas of that inventor can be copied in bad faith." *Barry v. Medtronic, Inc.*, 250 F. Supp. 3d 107, 114 (E.D. Tex. 2017). Therefore, though the 2010 teardown predates the issuance of some patents at-issue, I still consider it. See *Milwaukee Elec. Tool Corp. v. Snap-On Inc.*, 288 F. Supp. 3d 872, 900 (E.D. Wis. 2017); *Sonos, Inc.*, 2017 WL 5633204, at *3 (collecting cases).

I won't discount the gravity of Caterpillar's copying just because it happened pre-issuance. It took years for Caterpillar to develop its next generation cold planer. Caterpillar finalized its design choices for its new machines *after* Wirtgen's patents

(other than the '530 Patent) issued. Thus, Caterpillar's effort to replicate the desired features of Wirtgen's machines both pre-date and post-date these patents' issuance. This fact distinguishes Caterpillar's copying from other cases where judges have given pre-issuance copying a pass. *See, e.g., DMF, Inc. v. AMP Plus, Inc.*, No. 218CV07090CASGJSX, 2023 WL 8621935, at *7 (C.D. Cal. Dec. 11, 2023), *amended*, No. 218CV07090CASGJSX, 2024 WL 1796396 (C.D. Cal. Apr. 25, 2024).

Caterpillar tries to minimize the teardowns in other ways, but none disturb this finding. *First*, Caterpillar did not target the teardown just at cost cutting. It also identified design features to incorporate into future builds. *Second*, Caterpillar submits that it contributed independent design work to its next generation of cold planers, and maybe it did. But that does not negate its copying. *See DMF, Inc.*, 2023 WL 8621935, at *7.

Third, Caterpillar argues it could not have copied Wirtgen because certain technologies (parallel to surface feature, reverse rotor shut off, and hot swap) were present in its earlier generation of cold planers. To the extent that Caterpillar's cold planers already had those features, Caterpillar intended to improve those features. (Tr. 360:16-361:5.) Ideas for those improvements came, in part, from the teardown of the W120. (Tr. 412:13-20; Ex. 0602.0107.) The evidence reveals that Caterpillar incorporated Wirtgen's features on its next generation of cold planers to make them "more like" Wirtgen's machines, even though Caterpillar already had some similar technologies in

older generations of machines. *Apple Inc. v. Samsung Elecs. Co.*, 258 F. Supp. 3d 1013, 1030 (N.D. Cal. 2017). That's enough to demonstrate copying.

Caterpillar's deliberate copying exceeds the level of culpability necessary to weigh this factor in Wirtgen's favor. *See Trustees of Columbia Univ. City of New York v. Gen Digital Inc.*, No. 3:13CV808, 2023 WL 8699435, at *10 (E.D. Va. Sept. 30, 2023). While a "smoking gun" isn't necessary to find deliberate copying, there is one here. *Id.* (internal citation omitted). I find that this factor weighs heavily in favor of an enhancement.

b. Knowledge of infringement (factor 2)

The second *Read* factor asks "whether the infringer, when he knew of the other's patent protection, investigated the scope of the patent and formed a good-faith belief that it was invalid or that it was not infringed." *Read*, 970 F.2d at 827. There's no evidence that Caterpillar formed a good faith belief of non-infringement prior to the commencement of Wirtgen's litigation in 2017. At trial, Caterpillar did not present specific or direct evidence of such a belief. Caterpillar established that it has general established protocols to avoid patent infringement, but it didn't establish anything about its belief concerning the Accused Machines and the patents that the jury found infringed. So, I don't give Caterpillar's corporate policies all that much credit. *See, e.g., Creative Internet Advert. Corp. v. Yahoo! Inc.*, 689 F. Supp. 2d 858, 865 (E.D. Tex. 2010). "The absence of evidence of an adequate investigation" means that Caterpillar likely did not have a reasonable belief of non-infringement. *Milwaukee Elec. Tool Corp. v. Snap-*

On Inc., 288 F. Supp. 3d 872, 901 (E.D. Wis. 2017) (internal quotation omitted). My analysis applies equally to the '788 and '972 Patents that were not at-issue in the ITC. Even for those patents, there's no evidence that Caterpillar investigated its possible infringement or that it had some good faith belief of non-infringement.

I emphasize that I am not drawing a negative inference from Caterpillar's decision to assert privilege over the opinions of counsel. *See* 35 U.S.C. § 298. Rather, when I review the trial record as a whole, I do not see a basis for Caterpillar's belief of non-infringement pre-suit.

After Wirtgen commenced litigation in the ITC and with this case, Caterpillar defended itself vigorously and prevailed on certain of its defenses. I will assume that Caterpillar's conduct during litigation evinces its good faith belief of noninfringement, at least during the ITC proceeding. But the ITC proceeding is long over. In 2018, the ALJ concluded that Caterpillar infringed certain claims of Wirtgen's patents. Caterpillar domesticated its production as it appealed the decision. In 2021, the Federal Circuit largely affirmed. A few months later, on remand, the ITC modified its limited exclusion order to encompass certain claims of the '530, '309, and '641 Patents. Yet as late as 2023, Caterpillar released rotary mixers incorporating the same technology that infringes the '530 Patent. (*See, e.g.*, Tr. 368:14-21, 369:12-15; 377:1-6; 451:15-452:7.)

The ITC's ruling and Caterpillar's response weigh heavily in my review of this factor. Caterpillar advises caution when considering the ITC decision, lest I stretch "the

agency's power beyond its statutory limits." (D.I. 389 at 10.) Caterpillar says that treating an ITC's decision in this way "as a practical matter, force[s] [future defendants] to do far more than cease importation." (*Id.*) This misses the mark.

I begin with the unsurprising observation that legal rulings do not happen in a vacuum. As a result, rulings have consequences beyond their explicit mandates. One consequence is to incent future lawful behavior. Upon receiving an adverse ruling, a defendant has a choice. It can rectify its behavior or continue down the same path that got it into trouble in the first place. With the latter, it takes the risk that the law could penalize him again.

The ITC's ruling held that Caterpillar infringed certain of Wirtgen's patents but only prevented importation. By domesticating its production, Caterpillar didn't rectify its infringement. It just changed manufacturing plants. Caterpillar took the risk that a later factfinder would be critical of this action. *Cf. Halo Elecs., Inc.*, 579 U.S. at 105 (culpability is measured at the time of the challenged conduct). That risk was Caterpillar's to take. In effect, it gambled that it could prevail before a jury and therefore avoid consequences for its choice. But it lost before the jury, and now it has to pay the piper. My skepticism of Caterpillar's post-ITC conduct may caution future defendants to take a different approach. If this opinion inspires a defendant to remedy its infringement, that's a feature, not a bug.

c. Litigation behavior and position (factors 3 and 5)

These factors are neutral. Caterpillar has presented colorable defenses throughout the litigation. My summary judgment, *Daubert*, and *in limine* rulings were a mixed bag. I rejected some of Caterpillar's arguments throughout the case, but that's not evidence of bad faith. Wirtgen also believes that Caterpillar shifted tactics between summary judgment and trial because its experts' opinions "were weak to the point of being frivolous," but that's just speculation. (D.I. 372 at 7.) Instead, the case has been a close one, and Caterpillar has maintained defensible positions during the case.

d. Size and financial condition (factor 4)

Both Caterpillar and Wirtgen are large companies, so this factor is neutral.

e. Duration (factor 6)

Caterpillar has been on notice of Wirtgen's infringement allegations since at least the time Wirtgen filed suit in 2017—over seven years ago. This substantial period of time weighs in favor of enhancing damages. *See Pro batter Sports, LLC v. Sports Tutor, Inc.*, 586 F. Supp. 3d 80, 118 (D. Conn. 2022), *aff'd*, No. 2022-1814, 2023 WL 7548208 (Fed. Cir. Nov. 14, 2023). That Caterpillar may have maintained a good faith belief of non-infringement during litigation does not change my finding. *See EagleView Techs., Inc. v. Xactware Sols., Inc.*, 522 F. Supp. 3d 40, 52–53 (D.N.J. 2021); *Milwaukee Elec. Tool Corp.*, 288 F. Supp. 3d at 903. Further, Caterpillar's defeat at the ITC as to infringement

on certain patents should have, but did not, end its infringement. Instead, it persisted for several more years. *See Creative Internet Advert. Corp.*, 689 F. Supp. 2d at 869.

f. Remedial action (factor 7)

For this factor, I may consider whether Caterpillar “ceased the sale of the infringing product during the pendency of the litigation.” *Creative Internet Advert. Corp.*, 689 F. Supp. 2d at 869. It is striking that in its responsive brief, Caterpillar does not address its post-ITC domestication of production under this factor. Caterpillar acknowledged at trial that this move allowed it to comply with the ITC’s ruling (which could only prohibit the importation of infringing products) while also *continuing to sell those infringing products* until it designed those features out. (Tr. 372:5-377:10; 442:3-21; 556:14-23.) In other words, rather than halt production or sale of its products that the ALJ held infringed, Caterpillar kept going.

Caterpillar did not disobey the ITC’s decision, but it found a loophole. The domestication of production is troubling because it evinces an intent to skirt a determination of infringement. At the very least, by 2018, Caterpillar knew that in the eyes of a neutral decisionmaker, what it was doing was wrong. Then it lost in the Federal Circuit, so by then it knew that multiple decisionmakers reached the same conclusion. I view the domestication as sneaky or, at the very least, underhanded. *See, e.g., Creative Internet Advert. Corp.*, 689 F. Supp. 2d at 869 (finding that this factor weighed in favor of

enhancement when the infringer “carr[ie]d out its infringement under a façade of non-infringement.”)

I also consider whether Caterpillar “show[ed] an effort to design around the patent.” *Apple Inc. v. Samsung Electronics Co., Ltd.*, 258 F. Supp. 3d 1013, 1035 (N.D. Cal. 2017). To be sure, Caterpillar also began redesigning its products. But these redesigns occurred around the same time as the domestication of production. (*See, e.g.*, Tr. 1043:11-21.) This good behavior can’t neutralize the bad when Caterpillar continued to sell its infringing goods in the meantime because continued infringing sales “cannibalize” an infringer’s remedial efforts to implement redesigns. *Canon, Inc. v. Color Imaging, Inc.*, 292 F. Supp.3d 1357, 1368 (N.D. Ga. 2018). After an adverse finding of infringement, redesigns are a bare minimum to ensure compliance. That Caterpillar meets the floor does not excuse its other strategic decisions around the same time. I find that this factor heavily weighs in favor of enhancing damages.

g. Motivation for infringement (factor 8)

For this factor, I consider “whether there is evidence of any direct motivation on the part of the infringer to harm the patent holder, as opposed to advancing its own interests.” *Canon, Inc.*, 292 F. Supp.3d at 1368. At trial, it was apparent that Caterpillar infringed Wirtgen’s patents only with a desire to increase its own sales, not an intent to damage Wirtgen. Caterpillar tore down the W120 to develop “a superior product.” (Tr. 511:18-21.) At least one Caterpillar engineer testified that he has “a lot of respect for the

Wirtgen brothers." (*See, e.g.*, Tr. 362:21-22; 363:4-6.)⁷ I find this factor neutral. *See Canon, Inc.*, 292 F. Supp. 3d at 1368 (collecting cases finding this factor neutral when the infringer acted without spite towards the patentee).

h. Concealment (factor 9)

Wirtgen does not argue that Caterpillar concealed its infringement, and I discern no concealment. Thus, this factor cuts against enhancing damages.

* * *

In sum, of the nine *Read* factors, four weigh in favor of enhancing damages, four are neutral, and one weighs against. Caterpillar deliberately copied Wirtgen's machines in developing its next generation cold planer and continued to manufacture and sell its infringing machines after an adverse ruling from the ITC. Despite implementing certain redesigns, this misconduct continued for many years. However, Caterpillar did not assert frivolous positions in litigation, act with specific animus against Wirtgen, or attempt to conceal its infringement.

I have discretion to determine the amount of the enhancement that is warranted. *WBIP, LLC*, 829 F.3d at 1342. When some of the *Read* factors are neutral or weigh against enhancement, courts routinely enhance damages below the statutory maximum.

⁷ I have also considered the slide where Caterpillar employees imposed a red cancel icon over a photograph of the Wirtgen brothers. (Ex. 602.) However, the accompanying testimony reveals that this slide evinces a general competitive spirit rather than specific animus. (*See, e.g.*, Tr. 557:2-558:17.)

See Barry, 250 F. Supp. 3d at 119 (collecting cases). Upon my review of the totality of the circumstances, I find that increasing damages by 50% is appropriate, to a total of \$19,485,307.44. This amount reflects the seriousness of Caterpillar's continued infringement of Wirtgen's patents while avoiding an excessive enhancement.

B. Attorneys' Fees

I may award attorneys' fees to the prevailing party in "exceptional cases." 35 U.S.C. § 285. An exceptional case "is simply one that stands out from others with respect to the substantive strength of a party's litigating position (considering both the governing law and the facts of the case) or the unreasonable manner in which the case was litigated." *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 572 U.S. 545, 554 (2014). That determination requires a review of the "totality of the circumstances." *Id.*

Because its request is premature, I will deny Wirtgen's request for attorneys' fees without prejudice. Any determination of exceptionalism of the case must wait until final judgment. Caterpillar's counterclaims against Wirtgen remain in the case. How the Parties litigate those claims bears on my determination of exceptionalism. Thus, Wirtgen may renew its motion at the conclusion of the litigation.

C. Permanent Injunction

Wirtgen seeks a permanent injunction as to Caterpillar's infringement of the '972, '788, and '530 Patents by Caterpillar's current machine design and as to Caterpillar's

infringement of the '641, '309, and '530 Patents by Caterpillar's prior machine design (the design Caterpillar used before the post-ITC redesign). (D.I. 372 at 15-16.)

1. Legal Standard

A court may enjoin ongoing patent infringement after considering traditional principles of equity. *See* 35 U.S.C. § 283. "A party seeking a permanent injunction must demonstrate: (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction." *Apple Inc. v. Samsung Elecs. Co.*, 809 F.3d 633, 639 (Fed. Cir. 2015) (citing *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391 (2006)).

2. Discussion

a. Irreparable harm

Irreparable harm may include lost sales as well as erosion in reputation and brand distinction. *See Douglas Dynamics, LLC v. Buyers Prod. Co.*, 717 F.3d 1336, 1344 (Fed. Cir. 2013). Evidence of past harm is relevant in determining whether an irreparable injury has occurred. *See i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 861 (Fed. Cir. 2010), *aff'd*, 564 U.S. 91, 131 (2011). To demonstrate irreparable harm, the patentee must show a causal nexus between the infringement and its harm. In other words, Wirtgen must demonstrate that "the infringing feature drives consumer demand for the accused

product." *TEK Glob., S.R.L. v. Sealant Sys. Int'l, Inc.*, 920 F.3d 777, 792 (Fed. Cir. 2019) (citation omitted).

Wirtgen has suffered an irreparable harm that Caterpillar cannot adequately compensate with monetary damages. "Head-to-head competition and lost market share tend to evidence irreparable harm." *Id.* Caterpillar and Wirtgen are "direct competitors in a limited market." *Broadcom Corp. v. Emulex Corp.*, 732 F.3d 1325, 1337 (Fed. Cir. 2013); *see also Peach State Labs, Inc. v. Env't Mfg. Sols., LLC*, No. 609CV395ORL28DAB, 2011 WL 13140668, at *3 (M.D. Fla. Aug. 12, 2011). When Caterpillar introduced its PM600 series, including certain features infringing on Wirtgen's patents, its market value doubled. Wirtgen lost that corresponding market share. *See i4i Ltd. P'ship*, 598 F.3d at 861-62. Wirtgen's injury is "clearly linked" to Caterpillar's infringement. *Broadcom Corp.*, 732 F.3d at 1337 (citing *Douglas Dynamics, LLC*, 717 F.3d at 1345).

Caterpillar submits that it captured market share from Roadtec and BOMAG, not Wirtgen. I've seen no evidence to support that theory, and it seems inconsistent with Wirtgen's corresponding decline, so I don't give it much credit. It's also possible that the truth is somewhere in the middle: infringement allowed Caterpillar to capture some market share from all three of its competitors. Viewed either way, I can and do conclude that Wirtgen suffered an injury from the infringement.

Wirtgen has rebounded from this loss. That doesn't change the fact that when Caterpillar launched machines with features infringing on Wirtgen's patents, Wirtgen

was harmed. The record shows that the injury was swift, serious, and unusual in the context of the road milling machine market. The patentee's profit or recovery in market share "does not automatically rebut a case for irreparable injury" if it occurs for reasons independent of the infringement. *Douglas Dynamics, LLC*, 717 F.3d at 1344. The patentee shouldn't "suffer some penalty for managing through great effort to maintain market share in the face of infringing competition." *Id.* at 1345.

Contrary to Caterpillar's assertion, *Douglas Dynamics* applies to this case. That decision emphasizes that *per se* rules and assumptions do not have a place in the permanent injunction analysis. *See Adidas Am., Inc. v. Skechers USA, Inc.*, No. 3:16-CV-1400-SI, 2017 WL 2604310, at *8 (D. Or. June 12, 2017). That its facts concerned only a two-player market does not take away from its general teachings. Certainly, in a two-player market it's easier to prove that an alleged infringer's gain in market share caused the other's loss—it's a zero-sum game. But in any market, evidence that an infringer's market share increased during the time of infringement is undoubtedly relevant to the irreparable harm inquiry.

There's sufficient evidence that consumers bought the Accused Machines because Caterpillar equipped them with the features claimed in Wirtgen's patents. *See TEK Glob., S.R.L.*, 920 F.3d at 792. Caterpillar recognized that it was falling behind in the marketplace. It engaged in systematic teardowns of certain Wirtgen machines. It documented the innovative features of those machines. Then Caterpillar used that

competitive intelligence to create its new generation of road milling machines. When those machines launched, Caterpillar's market share soared. Caterpillar's own consumer surveys show that customers wanted these features and that these features drove purchasing decisions. (*See, e.g.*, Tr. 411:14-412:5.)

It's no matter that Wirtgen lacks current expert-generated market surveys. The Voice of Consumer surveys establish what, at the time of infringement, customers valued in their road milling machines. This pre-suit, market-based evidence is more credible than an expert's *post-hoc* rationalization, and I credit it.

In addition, Wirtgen's loss of market share is not the only harm that it suffered. It lost convoyed sales of parts. More importantly, there are customers who decided to purchase fleets of Caterpillar machines. By purchasing those machines, those customers have committed to purchasing Caterpillar machines on a going-forward basis, and there's no way to measure and compensate Wirtgen for those lost opportunities in the market. And for many of those customers, that will result in purchases of additional Caterpillar machines for fleet maintenance purposes.

Caterpillar says that Wirtgen's failure to move for a preliminary injunction undercuts its contention that it suffered an irreparable harm. Wirtgen did not sleep on its rights. Caterpillar released its PM600 series in 2016. By 2017, Wirtgen had filed suit with the ITC and in district court. Wirtgen pursued a proceeding with the ITC because it believed that this would prevent Caterpillar from importing its infringing products. (Tr.

219:3-15.) That tactic was, in part, successful. On some of its patents and claims, Wirtgen succeeded in front of the ALJ. That Wirtgen opted for one successful strategy over pursuing a preliminary injunction can't foreclose the possibility of a permanent one. Wirtgen's focus and success in one forum doesn't doom its request for relief here. This is not a case where a patentee delays seeking relief in manner that prejudices its opposing party.

b. Inadequate remedy at law⁸

When a patentee has previously licensed its patents, a reasonable royalty might be sufficient to remedy the infringement. *See Acumed LLC v. Stryker Corp.*, 551 F.3d 1323, 1328 (Fed. Cir. 2008). Wirtgen has never licensed the patents at-issue to Caterpillar (or any other competitor). This weighs in favor of an injunction because it suggests that Wirtgen has enforced its right to exclude, and a reasonable royalty may not adequately cover its losses. *See Presidio Components, Inc. v. Am. Tech. Ceramics Corp.*, 702 F.3d 1351, 1363 (Fed. Cir. 2012); *cf. Johnson & Johnson Vision Care, Inc. v. CIBA Vision Corp.*, 712 F. Supp. 2d 1285, 1289 (M.D. Fla. 2010). Caterpillar retorts that Wirtgen did estimate its damages at trial. But there's nothing inconsistent with a patentee proving its damages at trial (as it has the burden to do) and then asking for injunctive relief.

⁸ "[T]he requisite analysis for the second factor of the four-factor test inevitably overlaps with that of the first." *MercExchange, L.L.C. v. eBay, Inc.*, 500 F. Supp. 2d 556, 582 (E.D. Va. 2007). I thus incorporate my analysis for the irreparable harm factor in this section, as well.

There is also evidence that the initial purchase of a road milling machine contributes to future downstream sales. Evidence suggests that customers in the market buy machines in fleets or, at the very least, that Caterpillar understands its customers to want to buy in fleets. (*See, e.g.*, Exs. 360.0016 (noting that a focus in 2018 is “fleet packages”); 562.0010 (explaining that Caterpillar wants to position itself as “customers’ preferred provider of a full range of cold planers” and promoting a plan to “stay in the market,” “fill the gap” and “extend the range” (cleaned up)).) Wirtgen’s customers buy spare or replacement parts for their machines in an amount almost equal to what they first paid to acquire the machine. (Tr. 200:19-24.) Caterpillar expects to get 30% of the initial machine price in revenue from sales of spare and replacement parts every year for the life of the machine. (Tr. 892:21-893:9; 894:4-24.)

This market’s ecosystem is not as involved or sticky of as the one described in *Apple*. *See Apple Inc. v. Samsung Elecs. Co.*, 809 F.3d 633, 645 (Fed. Cir. 2015). However, this evidence shows that there is a meaningful relationship between obtaining the sale of the machine and subsequent sales either of other machines or parts. Thus, Caterpillar’s encroachment into Wirtgen’s sales of road milling machines has a ripple effect: it takes away future sales that may be difficult to fully quantify. Infringement robs Wirtgen of this competitive advantage. These downstream sales weigh in Wirtgen’s favor.

Finally, Wirtgen argues that absent an injunction, Caterpillar will continue to infringe. Wirtgen cites the post-ITC decision domestication of Caterpillar’s manufacturing,

but there's also evidence that Caterpillar removed certain infringing features from its machines after the ITC's decision. (Tr. 1879:19-23.) It's speculation for me to infer what Caterpillar will or won't do with a jury verdict of infringement, so I don't weigh this fact in either party's favor.

c. Balance of hardships

This factor "assesses the relative effect of granting or denying an injunction on the parties." *i4i Ltd. P'ship*, 598 F.3d at 862. I may consider "the parties' sizes, products, and revenue sources" but not the infringer's "expenses incurred in creating the infringing products and the consequences of its infringement, such as the cost of redesigning the infringing products." *Bio-Rad Lab'ys, Inc. v. 10X Genomics Inc.*, 967 F.3d 1353, 1378 (Fed. Cir. 2020) (citation omitted) (cleaned up).

Both Wirtgen and Caterpillar are large companies. There's no evidence to suggest that an injunction of the Accused Machines will put Caterpillar out of business. *Cf. id.* at 1397. In the road milling machine market, Wirtgen is by far and away the market leader. But Caterpillar's relative size in the market doesn't excuse its infringing behavior. "A party cannot escape an injunction simply because it is smaller than the patentee." *Robert Bosch LLC v. Pylon Mfg. Corp.*, 659 F.3d 1142, 1156 (Fed. Cir. 2011).

The Parties quibble about the ease or difficulty in redesigning Caterpillar's infringing machines. But I don't consider the fact that Caterpillar will incur costs in redesigning its machines in this analysis. *See i4i Ltd. P'ship*, 598 F.3d at 863.

Caterpillar's remaining arguments do not tip the scale in its favor. Caterpillar argues that Wirtgen America hasn't demonstrated that it invested "anything of substance (beyond legal fees) in these patents" after acquiring them from Wirtgen GmbH. (D.I. 389 at 21.) Assuming *arguendo* that this is accurate, it doesn't change my analysis of the *future* effect of granting or denying an injunction. See *i4i Ltd. P'ship*, 598 F.3d at 862.

Caterpillar also argues that it would "lose out on costs associated with developing and commercializing technology that has nothing to do with Wirtgen's patents." (D.I. 389 at 22.) That's true of any infringer who incorporates infringing technology into a larger product. As the Federal Circuit has explained, "[o]ne who elects to build a business on a product found to infringe cannot be heard to complain if an injunction against continuing infringement destroys the business so elected." *Robert Bosch LLC*, 659 F.3d at 1156 (quoting *Windsurfing Int'l, Inc. v. AMF, Inc.*, 782 F.2d 995, 1003 n.12 (Fed. Cir. 1986)). Caterpillar cannot escape an injunction because it integrated infringing and noninfringing elements into a single product.

d. Public interest

The "touchstone of the public interest factor is whether an injunction, both in scope and effect, strikes a workable balance between protecting the patentee's rights and protecting the public from the injunction's adverse effects." *i4i Ltd. P'ship*, 598 F.3d at 863. Generally, in patent cases, "the public interest nearly always weighs in favor of

protecting property rights in the absence of countervailing factors, especially when the patentee practices his inventions." *Apple Inc.*, 809 F.3d at 647. Yet, preservation of the patent system cannot "dominate such an analysis lest a presumption result."

MercExchange, L.L.C. v. eBay, Inc., 500 F. Supp. 2d 556, 586 (E.D. Va. 2007); *see also eBay Inc.*, 547 U.S. at 392 (rejecting categorical rules in the permanent injunction determination). It's therefore proper to consider "the type of patent involved, the impact on the market, the impact on the patent system, and any other factor that may impact the public at large." *MercExchange, L.L.C.*, 500 F. Supp. 2d at 586. Competition from infringement does not serve the public's interest. *See Douglas Dynamics, LLC*, 717 F.3d at 1345-46.

This injunction would serve the public interest. Wirtgen has always maintained its exclusive right over its patents by never licensing them. Under these facts, the public has a strong interest in a robust patent system that protects property rights. *Cf.*

MercExchange, L.L.C., 500 F. Supp. 2d at 587 (finding that the public's interest did not support an injunction when the patentee "repeatedly" licensed its patents). The Parties present diverging narratives on what would occur in the road milling machine market with this injunction. To Caterpillar, competition would be lessened, and consumers would be negatively impacted. On the other side, Wirtgen proffers evidence that the market would be able to absorb its ramifications without harm to consumers. (*See D.I.* 372 at 21 (citing Tr. 208:16-209:8, 1781:9-1782:16).)

It's true that the market is small. So, I will assume that an injunction will further limit a consumer's options in the marketplace. But even if I agree with Caterpillar's forecast, this does not change my analysis. Caterpillar appeals to the public's interest in a competitive marketplace. But this argument treads dangerously close to one the Federal Circuit has rejected. *See Douglas Dynamics, LLC*, 717 F.3d at 1345-46. In that case, the Federal Circuit recognized the inherent tension between enforcing patent rights and promoting free-flowing competition. *See id.* The court explained that the public's interest in cheap alternatives produced by more competitors did not outweigh its interest in acquiring new technology created by the protections provided by our patent system. *See id.* While an injunction in this case might have a detrimental effect on competition, this effect does not outweigh the public's interest in enforcing patent rights. *See Apple Inc.*, 809 F.3d at 647.

Some government entities use Caterpillar machines for road paving projects. If the government must invest in machines from other brands moving forward, there could be an added cost to the taxpayer. Caterpillar submits no empirical evidence on this issue, so it's unclear how large this price tag is. In any event, those who sell to governmental entities are not excused from complying with patents just because the introduction of infringing products might drive down taxpayer costs.

e. Sunset period

A court may tailor injunctive relief to “minimize disruptions to businesses and consumers.” *Metso Mins., Inc. v. Powerscreen Int’l Distribution Ltd.*, 788 F. Supp. 2d 71, 77 (E.D.N.Y. 2011) (collecting cases). In certain cases, a “sunset” provision may be appropriate to allow an infringer to implement redesigns and mitigate harm to the public. *See B. Braun Melsungen AG v. Terumo Med. Corp.*, 778 F. Supp. 2d 506, 513 (D. Del. 2011).

I don’t need to impose a sunset provision. Caterpillar asks for “a substantial sunset period” to allow it to implement redesigns. (D.I. 389 at 23.) Caterpillar makes this request in passing. Caterpillar does not give me a rationale for why it is entitled to a sunset period (much less a “substantial” one). It does not provide me with data from which I could discern how long the redesigns would take. It also doesn’t explain what harm to the public I would be ameliorating with such a provision. In this situation, it appears that Caterpillar is seeking a “soft landing” for its infringement, which I reject. *See B. Braun Melsungen AG*, 778 F. Supp. 2d at 513.

D. Ongoing Royalty

Because I will enter an injunction, I do not need to reach Wirtgen’s request in the alternative for an ongoing royalty.

E. Supplemental Damages

"District courts have discretion to award damages for periods of infringement not considered by the jury." *Whitserve, LLC v. Computer Packages, Inc.*, 694 F.3d 10, 38 (Fed. Cir. 2012). The jury awarded damages based on Caterpillar's sales data that included sales before and in 2023. (*See* Ex. 3322.) Supplemental damages would cover sales not included in that data through the date of the entry of judgment. Caterpillar does not contest Wirtgen's entitlement to supplemental damages.

I will order an accounting of Caterpillar's sales not included in Exhibit 3322 that occur before the date when judgment is entered. Wirtgen will then have 28 days after its receipt of this accounting to file a supplemental damages calculation for approval.

F. Pre- And Post-Judgment Interest

1. Pre-judgment interest

A court should award pre-judgment interest "absent some justification for withholding such an award." *Gen. Motors Corp. v. Devex Corp.*, 461 U.S. 648, 657 (1983). "[A]bsent prejudice to the defendants, any delay by [the patentee] does not support the denial of prejudgment interest." *Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l, Inc.*, 246 F.3d 1336, 1361-62 (Fed. Cir. 2001) (quoting *Lummus Indus., Inc. v. D.M. & E. Corp.*, 862 F.2d 267, 275 (Fed. Cir. 1988)). "[W]ithholding of prejudgment interest based on delay is the exception, not the rule." *Lummus Indus., Inc.*, 862 F.2d at 275.

There was no delay that prejudiced Caterpillar. Caterpillar cites to delays in this litigation that it attributes to the stay pending the ITC proceedings and Wirtgen's "aggressive litigation style." (D.I. 389 at 25.) This argument boils down to frustration that after a lengthy proceeding, Caterpillar's damages are higher. That's insufficient prejudice to avoid paying prejudgment interest. *See, e.g., MHL Custom, Inc. v. Waydoo USA, Inc.*, No. CV 21-0091-RGA, 2023 WL 5805889, at *7 (D. Del. Sept. 7, 2023), *appeal dismissed*, No. 2024-1036, 2024 WL 1878763 (Fed. Cir. Apr. 30, 2024). Caterpillar has failed to show that it suffered prejudice from these delays so I will award pre-judgment interest. *See Bd. of Regents v. Bos. Sci. Corp.*, No. CV 18-392, 2024 WL 2848471, at *16 (D. Del. June 5, 2024).

Judges "within this District have compounded interest on a quarterly basis." *Galderma Lab'ys, L.P. v. Medinter US LLC*, No. 118CV01892JDWCJB, 2024 WL 456790, at *1 (D. Del. Feb. 5, 2024). That makes good sense, and it's a reasonable methodology to make Wirtgen whole. Caterpillar complains that there's no evidence that it would have made royalty payments on a quarterly basis. That's right, but it doesn't matter. The jury awarded a lump sum royalty. It's fair to assume that Caterpillar would have paid that royalty when the hypothetical negotiation concluded and Caterpillar obtained the license. From there, the question is just how to compensate Wirtgen for the time without the money. Doing so on a quarterly basis, rather than annually, better reflects

the reality that money loses value over time.⁹ Therefore, I conclude that Wirtgen is entitled to prejudgment interest, using the methodology that Dr. Seth set forth in her Declaration: applying the Bank Prime Loan Rate at the quarterly average rate that the St. Louis Fed reports, using a mid-period convention over the time period for damages.

Although I conclude that Wirtgen should receive prejudgment interest, I can't yet calculate the amount of that interest because I haven't yet entered judgment. A judgment is a "decree [or] order from which an appeal lies." Fed. R. Civ. P. 54(a). But as things stand, no appeal will lie from my decisions to date because they aren't final; Caterpillar still has counterclaims pending in the case. *See* 28 U.S.C. §§ 1291, 1292(a), 1295(a).¹⁰ I will therefore direct the Parties to confer both about the status of any potential judgment and about the calculation of prejudgment interest, using the method I have specified.

2. Post-judgment interest

Post-judgment interest is mandatory under 28 U.S.C. § 1961, which provides that "interest shall be allowed on any money judgment in a civil case recovered in a district court." Interest "shall be calculated from the date of the entry of the judgment, at a rate equal to the weekly average 1-year constant maturity Treasury yield, as published by the

⁹ I will not apply pre-judgment interest to the enhanced damages. *See Trio Process Corp. v. L. Goldstein's Sons, Inc.*, 638 F.2d 661, 663 (3d Cir. 1981); *Beatrice Foods Co. v. New England Printing and Lithographing Co.*, 923 F.2d 1576, 1580 (Fed. Cir. 1991).

¹⁰ Caterpillar can immediately appeal the injunction that I'm awarding. *See* 28 U.S.C. § 1292(a)(1).

Board of Governors of the Federal Reserve System, for the calendar week preceding.” 28 U.S.C. § 1961(a). The interest is “computed daily to the date of payment.” 28 U.S.C. § 1961(b). Caterpillar does not contest that Wirtgen is entitled to post-judgment interest. Accordingly, I will order Caterpillar to pay post-judgment interest at the applicable rate, compounded annually, beginning whenever I enter judgment.

G. Road Reclaimers

Caterpillar argues that Wirtgen is not entitled to enhanced damages, ongoing royalties or an injunction on Caterpillar’s road reclaimers because Wirtgen failed to prove infringement or damages as to these machines. There’s no basis to treat these machines separately. For the reasons stated above, I do not disturb the jury’s verdict that Caterpillar’s road reclaimers infringe Wirtgen’s patents. The facts underlying the enhancement of damages or issuance of a permanent injunction are equally applicable to the road reclaimers.

IV. CONCLUSION

Upon my review of the trial record as a whole, I see no basis to disturb the jury’s decision. So, I deny both Parties’ renewed JMOLs and requests for a new trial. The evidence also reveals that Caterpillar copied Wirtgen’s machines and continued its infringement even after an adverse ruling from the ITC. Wirtgen suffered an irreparable harm that cannot be adequately compensated with monetary damages. As a result, I will impose enhanced damages and a permanent injunction. Caterpillar will also pay

supplemental damages and interest. I will allow Wirtgen to renew its motion for attorneys' fees at the close of this case. An appropriate Order follows.

BY THE COURT:

/s/ Joshua D. Wolson

JOSHUA D. WOLSON, J.

September 17, 2024